

## CLAIMS

What is claimed is:

1. A locking and releasing apparatus for operating a medical device comprising:

a handle;

a lever member coupled to the handle for grasping engagement by an operator, the lever member being moveable in opposite directions relative to the handle; and

a locking and release mechanism operably connecting the lever member to a force transmitting member for operating the medical device at a location distant from the handle;

wherein, the locking and release mechanism locks movement of the force transmitting member in one direction after movement of the lever member in a locking direction, and wherein, the locking and release mechanism releases movement of the force transmitting member in the one direction after opposite movement of the lever member in a releasing direction, wherein the lever member operates the locking and release mechanism for releasing the movement of the force transmitting member in the one direction substantially upon changing movement of the lever member from the locking to the releasing direction.

2. The locking and releasing apparatus for operating a medical device according to claim 1 wherein the locking and release mechanism comprises a pawl and a rack coupled

to either the force transmitting member or the handle respectively, wherein the pawl engages the rack after movement of the lever member, and wherein the pawl disengages the rack after opposite movement of the lever member.

3. The locking and releasing apparatus for operating a medical device according to claim 2 wherein the pawl has a camming surface, wherein the camming surface is engaged through relative movement between the lever member and the pawl, and wherein the locking and release mechanism further comprises a spring biasing the pawl to engage the rack.

4. The locking and releasing apparatus for operating a medical device according to claim 1 wherein the releasing direction is substantially opposite of the locking direction.

5. The locking and releasing apparatus for operating a medical device according to claim 1 wherein the locking and release mechanism comprises a first wedge coupled to the force transmitting member and a second wedge slidably coupled to the first wedge, wherein the lever member engages the first wedge or the force transmitting member in the locking direction, and wherein the lever member engages the second wedge in the releasing direction.

6. The locking and releasing apparatus for operating a medical device according to claim 5 wherein the locking and release mechanism further comprises a spring biasing wedging surfaces of the first and second wedges against each other.

7. The locking and releasing apparatus for operating a medical device according to claim 1 wherein the locking and release mechanism comprises a cleat wedge coupled to

the force transmitting member, wherein the lever member engages the force transmitting member in the locking direction, and wherein the lever member releases the cleat wedge in the releasing direction.

8. A locking and releasing apparatus for operating a medical device comprising:

a handle;

a lever member mounted on the handle for grasping engagement by an operator, the lever member being moveable in opposite first and second directions relative to the handle over a predetermined range of motion;

a locking mechanism operably connecting the lever member to a force transmitting member for operating the medical device at a location distant from the handle; and

a release mechanism operably connected to the lever member;

wherein, the locking mechanism locks movement of the force transmitting member at a locking position located over at least part of the range of motion of the lever member after movement of the lever member in the first direction, and wherein changing the direction of movement of the lever member from the first direction where the lever member is at the locking position causes the release mechanism to release movement of the force transmitting member.

9. The locking and releasing apparatus for operating a medical device according to claim 8 wherein the locking mechanism comprises a pawl and a rack coupled to either

the force transmitting member or the handle respectively, wherein the pawl engages the rack after movement of the lever member, and wherein the pawl disengages the rack after opposite movement of the lever member.

10. The locking and releasing apparatus for operating a medical device according to claim 9 wherein the pawl has a camming surface, wherein the release mechanism engages the camming surface through relative movement between the lever member and the pawl, and wherein the locking mechanism further comprises a spring biasing the pawl to engage the rack.

11. The locking and releasing apparatus for operating a medical device according to claim 8 wherein the locking mechanism comprises a first wedge coupled to the force transmitting member and a second wedge slidably coupled to the first wedge, wherein the lever member engages the first wedge or the force transmitting member in the first direction with the release mechanism, and wherein the lever member engages the second wedge in the second direction with the release mechanism, and wherein the locking mechanism further comprises a spring biasing wedging surfaces of the first and second wedges against each other.

12. The locking and releasing apparatus for operating a medical device according to claim 8 wherein the locking mechanism comprises a cleat wedge coupled to the force transmitting member wherein the lever member engages the the force transmitting member in the first direction with the release mechanism, and wherein the lever member releases the cleat wedge in the second direction with the release mechanism.

13. A one hand locking and releasing apparatus for operating a medical device comprising:

a handle;

a finger loop mounted on the handle for receiving a finger of an operator;

first and second lever members mounted on the handle for grasping engagement by other fingers of the operator, at least one of the lever members being mounted on the handle for movement in first and second directions relative to the finger loop; and

a locking and release mechanism operably connecting at least one of the first and second lever members to a force transmitting member for operating the medical device at a location distant from the handle;

wherein, the locking and release mechanism is actuated for locking movement of the force transmitting member by movement of the at least one of the lever members in the first direction, wherein the locking and release mechanism is actuated for releasing movement of the force transmitting member by movement of the at least one of the lever members in the second direction, the at least one of the lever members actuating the locking and release mechanism for releasing movement substantially upon changing direction of movement of the at least one of the lever members from the first direction to the second direction, and wherein, in the course of operating the medical device, the operator can reposition his fingers between the first and second lever members with rotation of the finger within the finger loop.

14. The one hand locking and releasing apparatus for operating a medical device according to claim 13 wherein,

the locking and release mechanism locks movement of the force transmitting member after application of force by the operator to at least one of the lever members and the finger loop in the first direction, and wherein the locking and release mechanism releases movement of the force transmitting member after application of force by the operator to at least one of the lever members and the finger loop in the second direction.

15. The one hand locking and releasing apparatus for operating a medical device according to claim 13 wherein the finger loop is integral with the handle, and wherein the first lever member and the second lever member are coupled such that the first lever member and the second lever member move in a coordinated manner.

16. The one hand locking and releasing apparatus for operating a medical device according to claim 15 wherein the locking and release mechanism locks movement of the force transmitting member after movement of both of the lever members relative to the finger loop in a locking direction and, wherein the locking and release mechanism releases movement of the force transmitting member after movement of both of the lever members relative to the finger loop in a releasing direction.

17. The one hand locking and releasing apparatus for operating a medical device according to claim 15 wherein there is free play between both of the lever members and the locking and release mechanism between a locking operation and a release operation.

18. The one hand locking and releasing apparatus for operating a medical device according to claim 16 wherein the locking and release mechanism comprises a pawl and a rack coupled to either the force transmitting member or the handle respectively, wherein the pawl engages the rack

after movement of the lever members in the locking direction, and wherein the pawl disengages the rack after movement of the lever members in the release direction.

19. The one hand locking and releasing apparatus for operating a medical device according to claim 16 wherein the locking and release mechanism comprises a first wedge coupled to the force transmitting member and a second wedge slidably coupled to the first wedge, wherein at least one of the lever member engages the first wedge or the force transmitting member in the locking direction, and wherein at least one of the lever member engages the second wedge in the releasing direction.

20. The one hand locking and releasing apparatus for operating a medical device according to claim 16 wherein the locking and release mechanism comprises a cleat wedge coupled to the force transmitting member, and wherein at least one of the the lever members engages the force transmitting member in the locking direction, and wherein at least one the lever members releases the cleat wedge in the releasing direction.